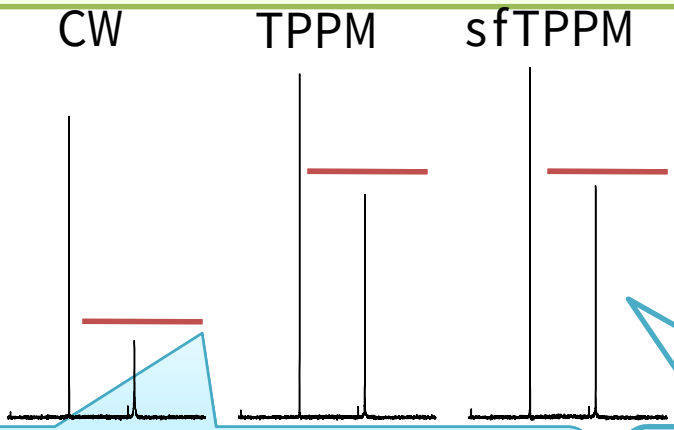
The key to successful ^{13}C CPMAS measurement: ^{1}H Decoupling schemes

We briefly introduce the effect of ^{1}H decoupling on ^{13}C CPMAS measurements. The key points are high ^{1}H decoupling power, decoupling schemes, and proper adjustments of parameters.

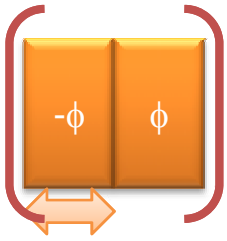


JNM-ECA500
^{13}C CPMAS
sample: glycine
MAS: 15 kHz
decoupling field: 78 kHz

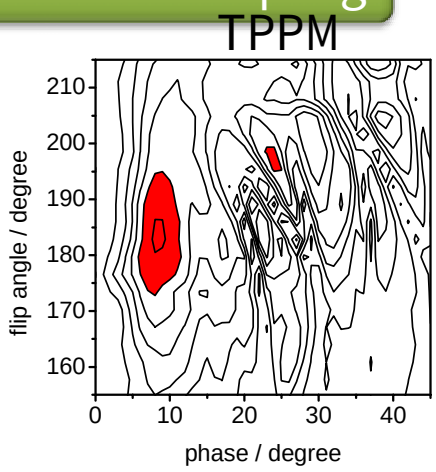
CW could not provide sufficient decoupling for methylene carbons.

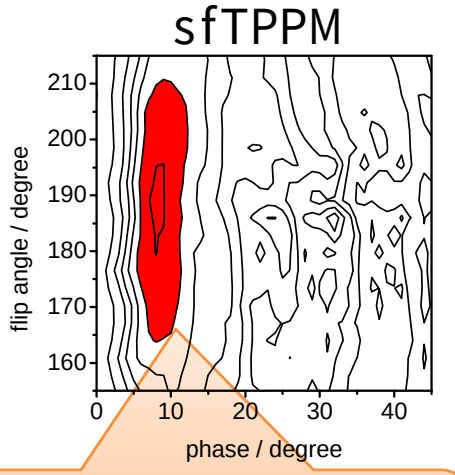
Both TPPM and sfTPPM provide similar results after adjustments.

adjustment of ^{1}H decoupling



Adjust two parameters:
・flip angle
・phase ϕ





sfTPPM enhances the matching conditions, which ensure the easy setting.

sfTPPM: R.S. Thakur, N.D. Kurur, P.K. Madhu, Chem. Phys. Lett. 426 (2006) 459-463.

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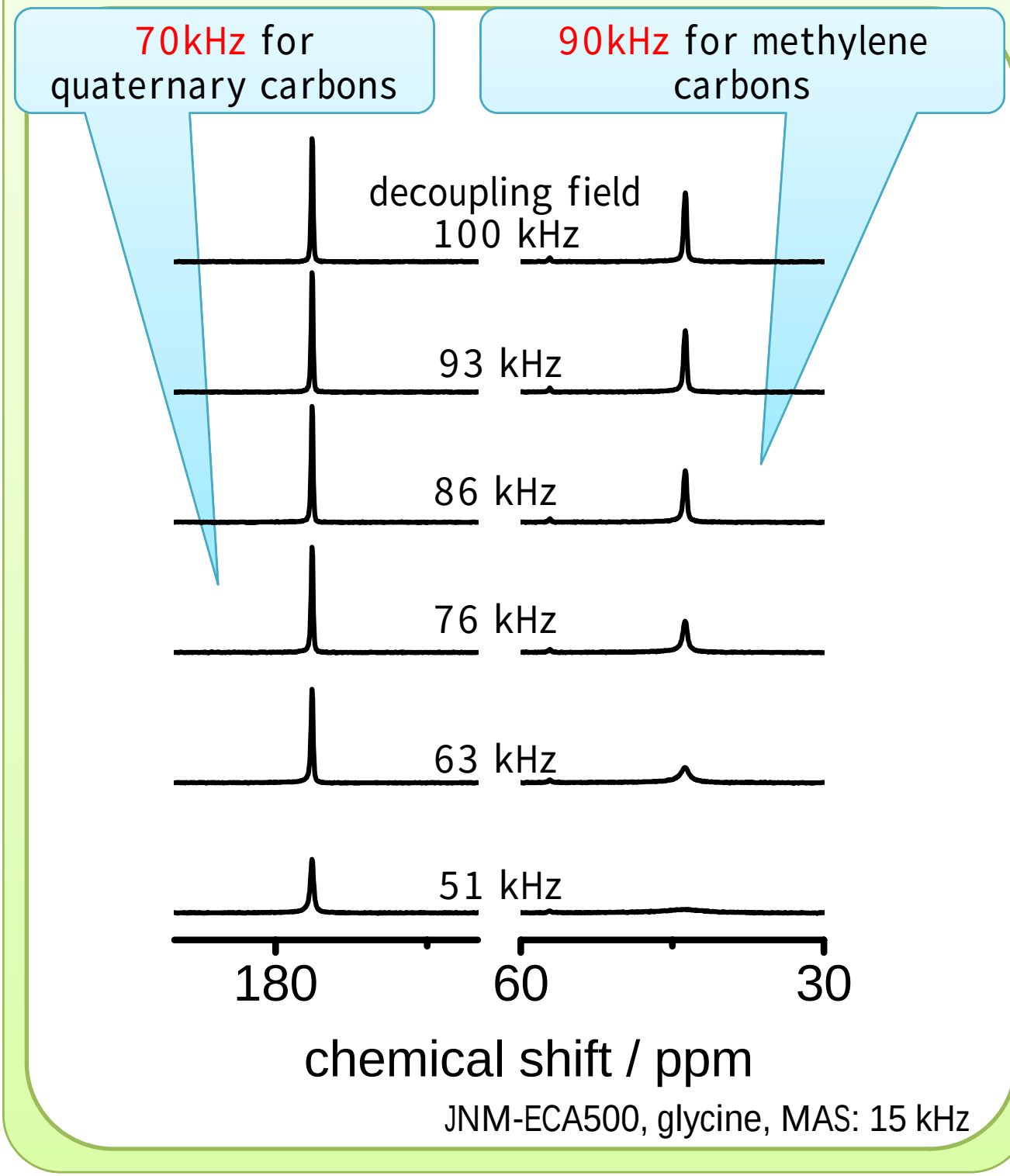
Effect of strong ^{1}H decoupling (sfTPPM)



JNM-ECA500, glycine, MAS: 15 kHz

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